

1. An electronic device adapted to communicate with a first device network and adapted to communicate with a second device that is part of a second device network, the device comprising:

a processor;

5 a communications module in electronic communication with the processor for communications with other devices including the second device and at least one device from the first device network;

memory in electronic communication with the processor for storing data;

10 a pseudo-random scheduler for providing time points defining a schedule for the electronic device to communicate with the other devices;

a dynamic scheduler to modify the schedule; and

an event queue.

15 2. The electronic device as defined in claim 1 wherein the dynamic scheduler implements a fair allocation method of dynamically allocating communication bandwidth.

3. The electronic device as defined in claim 2 wherein the fair allocation method comprises extending previous communications periods.

20 4. The electronic device as defined in claim 2 wherein the fair allocation method comprises reducing the number of initiation time points in the event queue.

5. The electronic device as defined in claim 1 wherein the dynamic scheduler implements an opportunistic allocation method of dynamically allocating communication bandwidth.

25 6. The electronic device as defined in claim 5 wherein the opportunistic allocation method comprises evaluating traffic pending and device availability and modifying the schedule based on the evaluation.

7. The electronic device as defined in claim 1 wherein the pseudo-random scheduler implements a predetermined synchronized method for generating time points.

8. The electronic device as defined in claim 1 wherein the pseudo-random scheduler implements
5 a predetermined asynchronous method for generating time points.

9. The electronic device as defined in claim 1 wherein the pseudo-random scheduler implements a real-time method for generating time points.

10 10. The electronic device as defined in claim 1 wherein the event queue comprises a plurality of initiation time points, a plurality of channel identifications and a plurality of data pending indicators.

11. The electronic device as defined in claim 1 wherein the electronic device further comprises a
15 state machine for scheduling and communicating, the state machine comprising an idle state, a data state, a negotiate schedule state and a re-establish state.

12. The electronic device as defined in claim 1 wherein the electronic device is configured to become part of a piconet.

13. The electronic device as defined in claim 1 wherein the pseudo-random scheduler provides the time points defining the schedule for the electronic device to communicate with a first piconet and a second piconet.

14. The electronic device as defined in claim 1 wherein the dynamic scheduler is configured to
25 enter a negotiate schedule state to determine new time points and to then modify the schedule using the new time points.

15. The electronic device as defined in claim 1 wherein the dynamic scheduler is configured to enter a negotiate schedule state when conflicting time points are detected whereby during the negotiate schedule state new time points are determined to then modify the schedule using the new time points and eliminate the conflicting time points.

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16. The electronic device as defined in claim 1 wherein the electronic device is configured to send a forced termination message to terminate a communications period.

10 17. The electronic device as defined in claim 1 wherein the electronic device is configured to send a data depleted termination message to terminate a communications period.

18. The electronic device as defined in claim 1 wherein the electronic device is configured to generate termination time points to schedule terminations of communications periods.

15 19. The electronic device as defined in claim 1 wherein the electronic device is configured to implement a traffic overlay method to manage resource reserved traffic.

20. The electronic device as defined in claim 1 wherein the electronic device is configured to implement a dynamic schedule modification method to manage resource reserved traffic.

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21. A computer-readable medium for carrying program data, wherein the program data comprises executable instructions for implementing a method comprised of the steps of:

transmitting outbound data from a first electronic device to a first device network;

receiving inbound data by the first electronic device from the first device network;

5 discovering a second electronic device of a second device network;

providing pseudo-random time points defining a schedule for the first electronic device to

communicate with the first device network and with the second electronic device;

storing the time points in an event queue; and

dynamically modifying the schedule to add additional communication bandwidth to at

10 least one communication channel.

22. The computer-readable medium as defined in claim 21 wherein the step of dynamically modifying implements a fair allocation method of dynamically allocating communication bandwidth.

23. The computer-readable medium as defined in claim 22 wherein the fair allocation method comprises extending previous communications periods.

24. The computer-readable medium as defined in claim 22 wherein the fair allocation method comprises reducing the number of initiation time points in the event queue.

25. The computer-readable medium as defined in claim 22 wherein the step of dynamically modifying implements an opportunistic allocation method of dynamically allocating communication bandwidth.

26. The computer-readable medium as defined in claim 25 wherein the opportunistic allocation method comprises evaluating traffic pending and device availability and modifying the schedule based on the evaluation.

27. The computer-readable medium as defined in claim 21 wherein the providing pseudo-random time points step implements a predetermined synchronized method for generating time points.

5 28. The computer-readable medium as defined in claim 21 wherein the providing pseudo-random time points step implements a predetermined asynchronous method for generating time points.

10 29. The computer-readable medium as defined in claim 21 wherein the providing pseudo-random time points step implements a real-time method for generating time points.

15 30. The computer-readable medium as defined in claim 21 wherein the event queue comprises a plurality of initiation time points, a plurality of channel identifications and a plurality of data pending indicators.

31. The computer-readable medium as defined in claim 21 wherein the method further comprises implementing a state machine for scheduling and communicating, the state machine comprising an idle state, a data state, a negotiate schedule state and a re-establish state.

20 32. The computer-readable medium as defined in claim 21 wherein the first device network is a piconet.

33. The computer-readable medium as defined in claim 32 wherein the second device network is a piconet.

25 34. The computer-readable medium as defined in claim 21 wherein the method further comprises entering a negotiate schedule state to determine new time points and to then modify the schedule using the new time points.

35. The computer-readable medium as defined in claim 21 wherein the method further comprises entering a negotiate schedule state when conflicting time points are detected whereby during the negotiate schedule state new time points are determined to then modify the schedule using the new time points and eliminate the conflicting time points.

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36. The computer-readable medium as defined in claim 21 wherein the method further comprises sending a forced termination message to terminate a communications period.

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37. The computer-readable medium as defined in claim 21 wherein the method further comprises sending a data depleted termination message to terminate a communications period.

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38. The computer-readable medium as defined in claim 21 wherein the method further comprises generating termination time points to schedule terminations of communications periods.

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39. The computer-readable medium as defined in claim 21 wherein the method further comprises using a traffic overlay method to manage resource reserved traffic.

40. The computer-readable medium as defined in claim 21 wherein the method further comprises using a dynamic schedule modification method to manage resource reserved traffic.

41. A method for pseudo-randomly and dynamically scheduling communication periods between electronic devices, the method comprising:

transmitting outbound data from a first electronic device to a first device network;
receiving inbound data by the first electronic device from the first device network;
5 discovering a second electronic device of a second device network;
providing pseudo-random time points defining a schedule for the first electronic device to
communicate with the first device network and with the second electronic device;
storing the time points in an event queue; and
dynamically modifying the schedule to add additional communication bandwidth to at
10 least one communication channel.

42. The method as defined in claim 41 wherein the step of dynamically modifying implements a fair allocation method of dynamically allocating communication bandwidth.

15 43. The method as defined in claim 42 wherein the fair allocation method comprises extending previous communications periods.

44. The method as defined in claim 42 wherein the fair allocation method comprises reducing the number of initiation time points in the event queue.

20 45. The method as defined in claim 42 wherein the step of dynamically modifying further implements an opportunistic allocation method of dynamically allocating communication bandwidth.

25 46. The method as defined in claim 45 wherein the opportunistic allocation method comprises evaluating traffic pending and device availability and modifying the schedule based on the evaluation.

47. The method as defined in claim 46 wherein the providing pseudo-random time points step implements a predetermined synchronized method for generating time points.

5 48. The method as defined in claim 46 wherein the providing pseudo-random time points step implements a predetermined asynchronous method for generating time points.

49. The method as defined in claim 46 wherein the providing pseudo-random time points step implements a real-time method for generating time points.

10 50. The method as defined in claim 46 wherein the event queue comprises a plurality of initiation time points, a plurality of channel identifications and a plurality of data pending indicators.

15 51. The method as defined in claim 50 wherein the method further comprises implementing a state machine for scheduling and communicating, the state machine comprising an idle state, a data state, a negotiate schedule state and a re-establish state.

52. The method as defined in claim 51 wherein the first device network is a piconet.

20 53. The method as defined in claim 52 wherein the second device network is a piconet.

54. The method as defined in claim 41 further comprising entering a negotiate schedule state to determine new time points and to then modify the schedule using the new time points.

25 55. The method as defined in claim 41 further comprising entering a negotiate schedule state when conflicting time points are detected whereby during the negotiate schedule state new time points are determined to then modify the schedule using the new time points and eliminate the conflicting time points.

56. The method as defined in claim 41 further comprising sending a forced termination message to terminate a communications period.

57. The method as defined in claim 41 further comprising sending a data depleted termination message to terminate a communications period.

58. The method as defined in claim 41 further comprising generating termination time points to schedule terminations of communications periods.

59. The method as defined in claim 41 further comprising using a traffic overlay method to manage resource reserved traffic.

60. The method as defined in claim 41 further comprising using a dynamic schedule modification method to manage resource reserved traffic.